Claims

1. A switching circuit for use at the antenna of a multiband mobile cellular handset, the circuit comprising an antenna port, a TX low band port, a TX high band port and at least one RX port, the circuit further comprising a single pole, triple throw (SP3T) solid state voltage-controlled switch to selectively connect any one of the TX low band port, TX high band port and RX port to the antenna port.

2. A switching circuit as claimed in claim 1, wherein the SP3T switch comprises a plurality of single pole, single throw (SP1T) solid state switching devices.

3. A switching circuit as claimed in claim 2, wherein the SP1T switching devices are diodes.

4. A switching circuit as claimed in claim 2 or 3, wherein the antenna port is connected to the TX low band port via a first SP1T device, to the TX high band port via a second SP1T device, and to the RX port via first and second frequency-dependent phase shifting elements connected in series, the circuit further including a first tuned circuit connected to the junction of the first and second frequency-dependent phase shifting elements via a third SP1T device and a second tuned circuit connected to the end of the second frequency-dependent phase shifting element via a fourth SP1T device, the first tuned circuit being tuned to resonate substantially at the centre of the TX high band frequency range, the second tuned circuit being tuned to resonate substantially at the centre of the TX low band frequency range, the first frequency-dependent phase shifting element corresponding to a quarter wavelength at frequencies in the TX high band frequency range, and the first and second frequency-dependent impedances in combination

corresponding to a quarter wavelength at frequencies in the TX low band frequency range.

5. A switching circuit as claimed in claim 4, wherein the first and second frequency-dependent phase shifting elements are first and second transmission lines respectively.

6. A switching circuit as claimed in claim 4, wherein the first and second frequency-dependent impedances are first and second LC networks.

7. A switching circuit as claimed in claim 4, 5 or 6 when dependent on claim 3, wherein the first diode has its anode connected to the antenna port and its cathode connected to the TX low band port, wherein the second diode has its anode connected to the antenna port and its cathode connected to the TX high band port, wherein the third diode has its anode connected to the junction of the first and second frequency-dependent impedances and its cathode connected to the first tuned circuit, and wherein the fourth diode has its anode connected to the end of the second frequency-dependent impedance and its cathode connected to the second tuned circuit, the circuit further including a first voltage input terminal connected to the anode of the first diode and the cathode of the third diode and a second voltage input terminal connected to the anode of the second diode and the cathode of the fourth diode.

8. A switching circuit as claimed in any preceding claim, wherein the at least one RX port comprises a plurality of different band RX ports derived from a common node of the circuit.

9. A switching circuit as claimed in claim 8, wherein the different band RX ports are each derived via a respective RF bandpass filter from the common node of the circuit.

10. A circuit for directing an RF input signal, appearing at a common node of said circuit and which may occupy any one of at least three mutually exclusive frequency bands, to a respective circuit output, the circuit including at least three RF bandpass filters each having a pass band corresponding to a respective one of the frequency bands of the input signal, and an impedance matching circuit connecting said RF filters in parallel to said node and which is designed so that within the pass band of any given RF filter the impedance from said common node along the circuit paths through the other RF filters is high compared to the impedance along the circuit path through the given RF filter.

11. A circuit as claimed in claim 10, wherein the RF filters are SAW filters.

12. A circuit as claimed in claim 10 or 11, wherein the RF filters have a balanced output.

13. A circuit as claimed in claim 10, 11 or 12, wherein the impedance matching circuit comprises a first sub-circuit connected to said common node and having a low band output and a high band output, and a second sub-circuit connected to the high band output of the first sub-circuit and having first and second outputs for upper and lower bands of the high band output.

14. A circuit as claimed in claim 13, wherein the low band output of the first sub-circuit comprises a parallel tuned

circuit and the high band output of the first sub-circuit comprises a series tuned circuit.

15. A circuit as claimed in claims 13 or 14, wherein one output of the second sub-circuit comprises a transmission line and the other output of the second sub-circuit comprises a tuned circuit.